

## Listing of Claims

1 - 21. (cancelled)

- 5 22. (currently amended) A compound of ~~[claim 20 in which]~~ formula **(Ia)** (or a salt or ester, or salt of an ester, thereof):



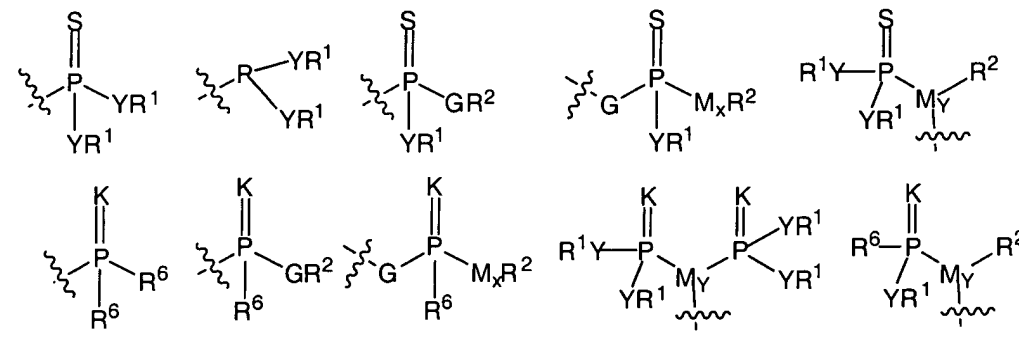
**(Ia)**

wherein

- 10  $R^A$  is  $M_x$ -aryl or  $M_x$ -heterocycle where M is a substituted or unsubstituted methylene, x is an integer from 1 to 6, the aryl moiety may bear one or more substituents, and the heterocycle is a substituted or unsubstituted, aromatic or nonaromatic heterocyclic moiety comprising a 5- to 7-membered ring bearing one or more heteroatoms;

$R^B$  comprises an aryl, or heteroaryl moiety bearing at least one a substituent of Series IIb:

15



**IIb**

- 20  $R^C$  is hydrogen, halogen, an aliphatic, heteroaliphatic, aryl, or heteroaryl moiety, or -ZR, wherein Z is -O-, -S-, or NR, wherein each occurrence of R without a further alphanumeric superscript is independently hydrogen, or a substituted or unsubstituted aliphatic, heteroaliphatic, aryl, or heteroaryl moiety;

each occurrence of K is independently -O- or -S-;

25

each occurrence of Y is independently -O-, -S-, -NR- or a chemical bond linking  $R^1$  to P;

each occurrence of R (without a further alphanumeric superscript) is independently hydrogen, or a substituted or unsubstituted aliphatic, heteroaliphatic, aryl, or heteroaryl moiety;

5 each occurrence of R<sup>1</sup> is independently a substituted or unsubstituted aliphatic, heteroaliphatic, aryl, or heteroaryl moiety, or, except in YR<sup>1</sup> moieties in which Y is a covalent bond, R<sup>1</sup> may also be H;

each occurrence of R<sup>2</sup> is independently R<sup>1</sup>, -PK(YR<sup>1</sup>)(YR<sup>1</sup>), -SO<sub>2</sub>(YR<sup>1</sup>) or -C(O)(YR<sup>1</sup>)

10 each occurrence of R<sup>6</sup> independently represents an aliphatic, heteroaliphatic, aryl, or heteroaryl moiety;

each occurrence of G is independently -O-, -S-, -NR- or M<sub>x</sub>; and,

15 each occurrence of M<sub>y</sub> is independently a methine group or a lower alkyl moiety which contains a methine group and optionally may be further substituted.

20 wherein in each of the foregoing groups each aliphatic or heteroaliphatic moiety may be branched or unbranched, cyclic or acyclic and substituted or unsubstituted, and each aryl and heteroaryl moiety may be substituted or unsubstituted.

23. (currently amended) The compound of claim ~~21~~ **22** wherein M<sub>x</sub> is methylene,  
25 ethylene or propylene, and the aryl moiety is o-, m-, or p-hydroxy-, 2,3-dihydroxy-, 2,4-dihydroxy-, 2,5-dihydroxy-, 3,4-dihydroxy-, or 3,5-dihydroxyphenyl.

24. (currently amended) The compound of ~~any of claims 1 to 23~~ **claim 22**, wherein  
R<sup>C</sup> is -OR, where R is H, aliphatic, heteroaliphatic, aryl, or heteroaryl .

25. (currently amended) The compound of ~~any of claims 1 to 23~~ **claim 22**, wherein  
30 R<sup>C</sup> is -R, -NRR or -OR in which each R is C1-C8 aliphatic, which may be branched or unbranched, cyclic or noncyclic, and which may be substituted with one or more hydroxy, alkoxy, aralkoxy, carbamyl, amino, substituted amino, acyl, cyano, halogen, nitro or sulfo groups, and/or with one  
35 or more alkyl, alkenyl, alkynyl, cycloalkyl, aryl, heterocyclic, aryloxy or aralkyl moieties which may

themselves be substituted with one or more hydroxy, alkoxy, aralkoxy, carbamyl, amino, substituted amino, acyl, cyano, halogen, nitro or sulfo groups.

47. (new) The compound of ~~any of claims 1 to 23~~ **claim 23**, wherein  $R^C$  is -R, -NRR or -OR in which each R is C1-C8 aliphatic, which may be branched or unbranched, cyclic or noncyclic, and which may be substituted with one or more hydroxy, alkoxy, aralkoxy, carbamyl, amino, substituted amino, acyl, cyano, halogen, nitro or sulfo groups, and/or with one or more alkyl, alkenyl, alkynyl, cycloalkyl, aryl, heterocyclic, aryloxy or aralkyl moieties which may themselves be substituted with one or more hydroxy, alkoxy, aralkoxy, carbamyl, amino, substituted amino, acyl, cyano, halogen, nitro or sulfo groups.

26. (currently amended) The compound of ~~any of claims 1 to 23~~ **claim 25**, wherein each said R comprises a C1-C8 aliphatic moiety substituted with one or more groups selected from the following: a substituted or unsubstituted amine or 5- to 7-membered heterocyclic moiety, which may itself be optionally substituted.

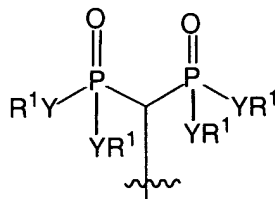
48. (new) The compound of ~~any of claims 1 to 23~~ **claim 47**, wherein each said R comprises a C1-C8 aliphatic moiety substituted with one or more groups selected from the following: a substituted or unsubstituted amine or 5- to 7-membered heterocyclic moiety, which may itself be optionally substituted.

49. (new) The compound of any of claims ~~1 to 26~~ **22, 23, 24, 25, 26, 47 or 48** in which  $R^D$  is H or halo.

27. (cancelled)

28. (cancelled)

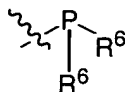
29. (currently amended) The compound of any of claims ~~1 to 26~~ **22, 23, 24, 25, 26, 47 or 48** in which  $R^B$  comprises



wherein each  $R^1$  is independently H, alkyl, arylalkyl, or aryl ~~or a prodrug moiety~~.

30. (currently amended)  
47 or 48 in which R<sup>B</sup> comprises

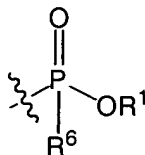
The compound of any of claims ~~1 to 26~~ 22, 23, 24, 25, 26,



5 wherein each R<sup>6</sup> is independently alkyl, arylalkyl, or aryl ~~or a prodrug moiety~~.

31. (currently amended)  
47 or 48 in which R<sup>B</sup> comprises

The compound of any of claims ~~1 to 26~~ 22, 23, 24, 25, 26,

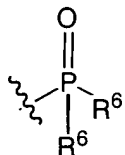


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wherein R<sup>1</sup> is H, alkyl, or arylalkyl ~~or a prodrug moiety~~ and R<sup>6</sup> is aliphatic, heteroaliphatic, aryl, or heteroaryl ~~or a prodrug moiety~~.

15 32. (currently amended)  
47 or 48 in which R<sup>B</sup> comprises

The compound of any of claims ~~1 to 26~~ 22, 23, 24, 25, 26,

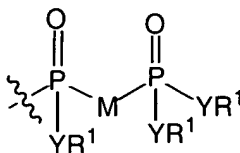


wherein each R<sup>6</sup> is independently aliphatic, heteroaliphatic, aryl, or heteroaryl ~~or a prodrug moiety~~.

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33. (currently amended)  
47 or 48 in which R<sup>B</sup> comprises

The compound of any of claims ~~1 to 26~~ 22, 23, 24, 25, 26,

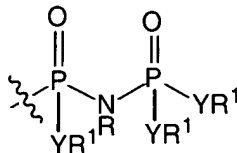


25 wherein each R<sup>1</sup> is H, alkyl, or arylalkyl ~~or a prodrug moiety~~, and Y and M are as defined previously.

34. (currently amended)

The compound of any of claims ~~1 to 26~~ **22, 23, 24, 25, 26,**

**47 or 48** in which R<sup>B</sup> comprises

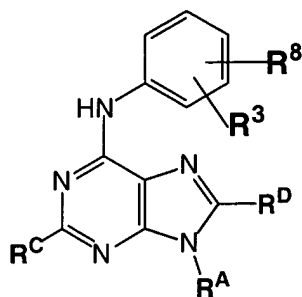


wherein each R<sup>1</sup> is independently H, H, alkyl, arylalkyl, ~~or aryl or a prodrug moiety~~ and R is

5 aliphatic, heteroaliphatic, aryl, or heteroaryl.

35. (cancelled)

36. (currently amended) A compound of formula (Ib) (or a ~~pharmaceutically acceptable derivative~~ salt or ester, or salt of an ester, thereof)):



(Ib)

wherein

R<sup>A</sup> is hydrogen, or an aliphatic, heteroaliphatic, aryl, or heteroaryl moiety;

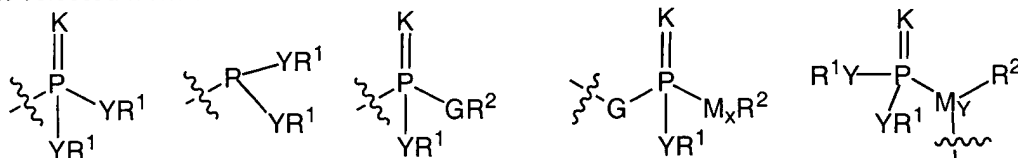
R<sup>C</sup> is ~~hydrogen, halogen,~~ an aliphatic, heteroaliphatic, aryl, or heteroaryl moiety, ~~or -ZR,~~

**R<sup>D</sup> is hydrogen, halogen, an aliphatic, heteroaliphatic, aryl, or heteroaryl moiety.**

**or -ZR;** wherein Z is -O-, -S-, or NR, wherein each occurrence of R without a further alphanumeric superscript is independently hydrogen, or a substituted or unsubstituted aliphatic, heteroaliphatic, aryl, or heteroaryl moiety;

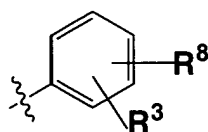
~~R<sup>D</sup> is hydrogen, halogen, an aliphatic, heteroaliphatic, aryl, or heteroaryl moiety, or -ZR,~~

R<sup>8</sup> is selected from the moieties of Series II:

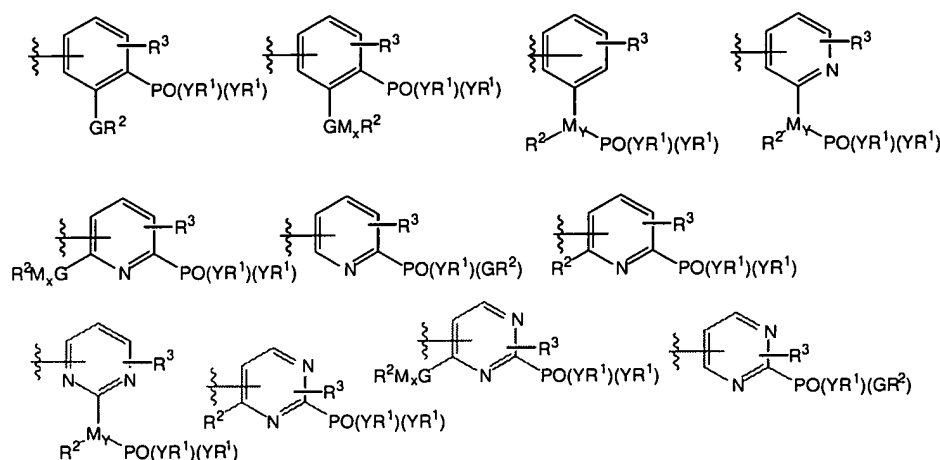


II

or



is selected from the moieties of Series III:



### III

R<sup>3</sup> represents from 0-3 substituents independently selected from the group consisting of halogen; R, -GR, -CO(YR), acylamino, amido, amidino, cyano, nitro, azido, sulfonyl, sulfoxido, sulfate, sulfonate, sulfamoyl, sulfonamido, and substituents of Series II;

wherein in each of the foregoing groups each aliphatic or heteroaliphatic moiety may be branched or unbranched, cyclic or acyclic and substituted or unsubstituted, and each aryl and heteroaryl moiety may be substituted or unsubstituted;

with the following provisos:

(A) (1) R<sup>D</sup> is a moiety other than one comprising a substituted or unsubstituted arylene moiety (in which up to two methine carbons may be replaced by nitrogen atoms), a C3-7 cycloalkylene moiety (which may contain nitrogen atoms in place of up to two ring carbons), an indanylene moiety, or a 1,2,3,4-tetrahydronaphthylene moiety; ~~or~~  
 (2) R<sup>D</sup> is a moiety other than one ~~terminating in~~ **bearing** a cyano group or in an N-substituted or unsubstituted amino, amidino, guanidino or guanidinoalkyl group;

~~(3) (B) in compounds in which R<sup>G</sup> is H, OH, halogen, alkoxy or cycloalkoxy groups of 1 to 6 carbon atoms (which alkoxy and cycloalkoxy groups can be substituted with phenyl) or amine, which can be substituted with phenyl or with alkyl or cycloalkyl groups of 1 to 6 carbon atoms, and R<sup>A</sup> is benzyl, phenyl or C1-4 alkyl, optionally substituted with oxygen (e.g. in the form of an ether or alcohol), R<sup>B</sup> is a moiety other than a heteroatom and halogen-substituted derivative of a 3 to 8 carbon cycloalkyl, a 1 to 10 carbon alkyl, a 6 to 13 carbon aryl, or a 7 to 14 carbon aralkyl moiety in which the heteroatom is selected from N, P, S and O; and~~

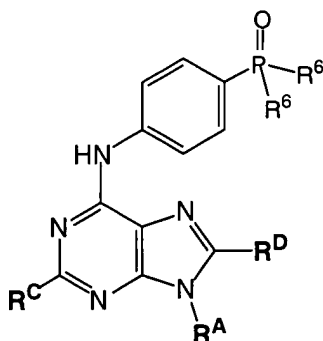
~~(C) (1) at least one of R<sup>A</sup>, R<sup>G</sup> or R<sup>D</sup> comprises a phosphorus-containing moiety; (2)~~

$R^C$  is covalently attached through a C-C bond to the carbon atom at ring position 2 of the purine ring system;

~~or (3)  $R^B$  comprises a phosphorus-containing moiety other than  $P(O)R^{B^1}R^{B^2}$  where  $R^{B^1}$  and  $R^{B^2}$  are independently OH, alkoxy, arylalkoxy, aryloxy, alkylcarbonyloxy, alkoxy, arylalkylcarbonyloxyalkoxy,  $NR^{B^3}R^{B^4}$ , mono- or di-alkylaminocarbonylmethoxy, (di-aryl-alkylaminocarbonylmethoxy, arylamino, a D- or L- amino acid, N-alkyl)piperidine-4-yloxy, 2-methylsulfonylethoxy, 1,3-thiazole-2-ylmethoxy, 3-pyridylmethoxy, or 2-((di-alkyl)amino)ethoxy, where  $R^k$  is H, alkyl, cycloalkyl, cycloalkylalkyl, or aryl or arylalkyl (1-5 carbon atoms of the aryl ring may be replaced with N, O or S), or  $R^{B^3}$  and  $R^{B^4}$  together with the atoms that connect them form a ring system (which can also contain additional N, O or S atoms and which can be saturated or unsaturated).~~

37 and 38. (cancelled)

39. (currently amended) The compound (or a ~~pharmaceutically acceptable derivative~~ **salt or ester, or salt of an ester**, thereof) of the formula :



wherein

$R^A$  is hydrogen, or an aliphatic, heteroaliphatic, aryl, or heteroaryl moiety;

$R^C$  is hydrogen, halogen, an aliphatic, heteroaliphatic, aryl, or heteroaryl moiety, or -ZR, wherein Z is -O-, -S-, or NR, wherein each occurrence of R without a further alphanumeric superscript is independently hydrogen, or a substituted or unsubstituted aliphatic, heteroaliphatic, aryl, or heteroaryl moiety;

$R^D$  is hydrogen, halogen, an aliphatic, heteroaliphatic, aryl, or heteroaryl moiety, or -ZR, with the proviso that  $R^D$  does not ~~terminate in~~ **bear** a cyano group or ~~is~~ an N-substituted or unsubstituted amino, amidino, guanidino or guanidinoalkyl group;

each  $R^6$  is independently aliphatic, heteroaliphatic, aryl, or heteroaryl and

wherein in each of the foregoing groups each aliphatic or heteroaliphatic moiety may be branched or unbranched, cyclic or acyclic and substituted or unsubstituted, and each aryl and heteroaryl moiety may be substituted or unsubstituted.



47 (new). The compound of claim 39 wherein R<sup>C</sup> is an aliphatic, heteroaliphatic, aryl, or heteroaryl moiety which is covalently attached through a carbon-carbon bond to the carbon atom at ring position 2 of the purine ring system.

5

48 (new). The compound of claim 47 in which R<sup>D</sup> is H.

49 (new). The compound of claim 47 in which R<sup>D</sup> is F.

10 40. (currently amended) A composition containing a compound of any of claims ~~1 to 39~~ **22, 23, 24, 25, 26, 29, 30, 31, 32, 33, 34, 36, 39, 47, 48, 49, 50 or 51**, and one or more pharmaceutically acceptable ~~excipient or additive~~ **excipients or additives**.

41 - 46. (cancelled)